CLAIMS

What is claimed is:

1. An apparatus for simulating phenomena of a combined particle formed of individual particles, comprising:

a kinetic condition setting unit which sets information for defining a plurality of generation periods and a corresponding number of individual particles to be generated during each generation period; and

a particle motion computing unit which generates the individual particles in accordance with the information set by the kinetic condition setting unit and computes motion of the generated individual particles, to simulate phenomena of the combined particle.

2. An apparatus as in claim 1, wherein the combined particle is formed of substrate particles and adsorbate particles, each said individual particle being an adsorbate particle.

3. An apparatus as in claim 1, wherein

the combined particle is formed of substrate particles and adsorbate particles, each said individual particle being an adsorbate particle, and,

before generating the individual particles, the particle motion computing unit generates the substrate particles.

4. An apparatus as in claim 1, further comprising:

a display which allows a user to enter the information set by the kinetic condition setting unit.

5. An apparatus as in claim 1, wherein

the combined particle is formed of a first type of particle and a second type of particle, each of said individual particles being the first type of particle, and

the kinetic condition setting unit sets information for generating the second type of particle.

6. An apparatus as in claim 1, wherein

each individual particle is formed of smaller particles;

the information set by the kinetic condition setting unit includes information indicating whether the smaller particles of a respective individual particle are fixed against center of mass of the individual particle; and

when the particle motion computing unit generates an individual particle and the information set by the kinetic condition setting unit indicates that the smaller particles of the respective individual particle are not fixed against center of mass, the particle motion computing unit provides a random orientation to the smaller particles of the individual particle.

7. An apparatus as in claim 6, further comprising:

a display which allows a user to enter the information set by

the kinetic condition setting unit.

8. An apparatus as in claim 1, wherein

each individual particle is formed of smaller particles;

the information set by the kinetic condition setting unit includes information indicating whether the smaller particles of a respective individual particle are fixed against center of mass of the individual particle; and

when the particle motion computing unit generates an individual particle and the information set by the kinetic condition setting unit indicates that the smaller particles of the respective individual particle are not fixed against center of mass, the particle motion computing unit provides an initial velocity to the smaller particles of the individual particle.

9. An apparatus as in claim 1, wherein, when generating an individual particle, the particle motion computing unit provides a random direction of center of mass velocity of the individual particle.

10. An apparatus as in claim 1, wherein

each individual particle has a corresponding emission source,

for each individual particle, the kinetic condition setting unit sets a region indicating a position of the corresponding emission source, and

the particle motion computing unit generates each individual

particle in accordance with the position of the corresponding emission source.

11. An apparatus as in claim 1, further comprising:

a display which displays the information set by the kinetic condition setting unit.

12. An apparatus for simulating phenomena of a combined particle formed of individual particles, each individual particle having a corresponding emission source, the apparatus comprising:

an input device which allows a user to designate a region;

a kinetic condition setting unit which, for each individual particle, sets the region designed by the user as a region indicating a position of the corresponding emission source; and

a particle motion computing unit which generates the individual particles in accordance with the position of the corresponding emission source as indicated by the region designated by the user and computes motion of the generated individual particles, to simulate phenomena of the combined particle.

13. An apparatus as in claim 12, wherein the input device is a display.

14. An apparatus as in claim 12, further comprising:

a display which displays the information set by the kinetic condition setting unit.

15. An apparatus as in claim 14, wherein the display shows the individual particles generated by the particle motion computing unit and indicates the motion computed by the particle motion computing unit.

16. An apparatus for simulating phenomena of a combined particle formed of individual particles, comprising:

a kinetic condition setting unit which sets information for defining kinetic conditions of the individual particles; and

a particle motion computing unit which generates the individual particles in accordance with the information set by the kinetic condition setting unit and computes motion of the generated individual particles, to simulate phenomena of the combined particle.

17. An apparatus as in claim 16, wherein

the combined particle is formed a first type of particle and a second type of particle, the first type of particle moving towards the second type of particle, each of said individual particles being the first type of particle,

the kinetic condition setting unit sets a region for defining an initial position of the individual particles, and

the apparatus further comprises a display which displays the relationship between the region set by the kinetic condition setting unit and a region indicating a position of a second type of

particle forming the combined particle.

18. An apparatus as in claim 17, wherein

the kinetic condition setting unit sets information for providing a direction of velocity to the individual particles, and

the display shows the direction of velocity with respect to the region set by the kinetic condition setting unit and the region indicating the position of the second type of particle.

19. An apparatus as in claim 16, further comprising:

a display which displays the information set by the kinetic condition setting unit.

20. A method for simulating phenomena of a combined particle formed of individual particles, comprising the steps of:

setting information for defining a plurality of generation periods and a corresponding number of individual particles to be generated during each generation period;

generating the individual particles in accordance with the information set in the setting step; and

computing motion of the generated individual particles, to simulate phenomena of the combined particle.

21. A method as in claim 20, wherein the combined particle is formed of substrate particles and adsorbate particles, each said individual particle being an adsorbate particle.

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22. A method for simulating phenomena of a combined particle formed of individual particles, each individual particle having a corresponding emission source, the method comprising the steps of:

setting, for each individual particle, a region indicating a position of the corresponding emission source;

generating the individual particles in accordance with the position of the corresponding emission source as indicated by the region set in the setting step; and

computing motion of the generated individual particles, to simulate phenomena of the combined particle.

23. An apparatus for simulating phenomena of a combined particle formed of individual particles, comprising:

setting information for defining kinetic conditions of the individual particles;

displaying the set information;

generating the individual particles in accordance with the set information; and

computing motion of the generated individual particles, to simulate phenomena of the combined particle.

24. An apparatus for simulating phenomena of a combined particle formed of substrate particles and adsorbate particles, comprising:

a kinetic condition setting unit which sets information for defining kinetic conditions of the adsorbate particles; and

a particle motion computing unit which generates the adsorbate particles in accordance with the information set by the kinetic condition setting unit and computes motion of the generated adsorbate particles, to simulate phenomena of the combined particle.

25. An apparatus as in claim 24, wherein the information set by the kinetic condition setting unit defines a plurality of generation periods and a corresponding number of adsorbate particles to be generated during each generation period by the particle motion computing unit.

26. An apparatus as in claim 24, wherein

the information set by the kinetic condition setting unit includes information for defining kinetic conditions of the substrate particles; and

the particle motion computing unit generates the substrate particles before generating the adsorbate particles.

27. An apparatus as in claim 24, wherein

each substrate particle includes a fixed particle, a temperature control particle and a free particle,

the information set by the kinetic condition setting unit includes information for defining kinetic conditions of the fixed particle, the temperature control particle and the free particle of each substrate particle, and

the particle motion computing unit generates the fixed particle, the temperature control particle and the free particle of each substrate particle in accordance with the information set by the kinetic condition setting unit.

28. An apparatus as in claim 24, further comprising:

a display which displays the information set by the kinetic condition setting unit.

29. An apparatus as in claim 24, wherein

each adsorbate particle includes a plurality of smaller particles;

the information set by the kinetic condition setting unit includes information indicating whether the smaller particles of a respective adsorbate particle are fixed against center of mass of the adsorbate particle; and

when the particle motion computing unit generates an adsorbate particle and the information set by the kinetic condition setting unit indicates that the smaller particles of the respective adsorbate particle are not fixed against center of mass, the particle motion computing unit provides a random orientation to the smaller particles of the adsorbate particle.

30. An apparatus as in claim 29, wherein, when the particle motion computing unit generates an adsorbate particle and the information set by the kinetic condition setting unit indicates that the

smaller particles of the respective adsorbate particle are not fixed against center of mass, the particle motion computing unit provides an initial velocity to the smaller particles of the adsorbate particle.

31. An apparatus as in claim 24, wherein, when generating an adsorbate particle, the particle motion computing unit provides a random direction of center of mass velocity of the adsorbate particle.

32. An apparatus as in claim 24, wherein

each adsorbate particle has a corresponding emission source,

for each adsorbate particle, the kinetic condition setting unit sets a region indicating a position of the corresponding emission source, and

the particle motion computing unit generates each adsorbate particle in accordance with the position of the corresponding emission source as indicated by the region set by the kinetic condition setting unit.